

|  |                  |   |                             |  |  |  |  |
|--|------------------|---|-----------------------------|--|--|--|--|
| <b>JOHNS HOPKINS</b><br>UNIVERSITY                               |                  | ZANVYL KRIEGER SCHOOL OF ARTS & SCIENCES<br>Baltimore, MD 21218 |                             | www.jhu.edu/registrar                  |  | <b>UNDERGRADUATE<br/>INTERNAL TRANSCRIPT</b> |  |
| Student Name<br>Mehrle, Nicholas Freeman                         |                  | Hopkins ID<br>897043  | Date of Birth<br>09/08/xxxx | JHU Degree and Date Conferred<br>xxxxx |  | Date Printed<br>2/3/2016                     |  |
| Year of Study<br>Senior  | Major<br>Physics | Advisor<br>Heckman, Timothy Martin                              |                             |  |  | Page 1 of 3                                  |  |
| Other Major(s)<br>Mathematics;Applied Mathematics and Statistics |                  |   | Minor(s)<br>xxxxx           |  |  |  |  |

| DIV | DEPT | CRSE # | COURSE TITLE | CRSE AREA | GRADE | CREDITS | GPA CREDITS | GPA PTS |
|-----|------|--------|--------------|-----------|-------|---------|-------------|---------|
|-----|------|--------|--------------|-----------|-------|---------|-------------|---------|

### Fall 2012

### Advanced Placement Examination

|       |  |  |  |    |  |      |  |  |
|-------|--|--|--|----|--|------|--|--|
| APPM  |  |  | Statistics EN.550.111                      | EQ |  | 4.0  |  |  |
| BIOL  |  |  | Biology (Lab I Waived) AS.020.151          | N  |  | 4.0  |  |  |
| BIOL  |  |  | Biology (Lab II Waived) AS.020.152         | N  |  | 4.0  |  |  |
| CHEM  |  |  | Chemistry AS.030.101                       | N  |  | 3.0  |  |  |
| CHEM  |  |  | Chemistry Lab AS.030.105                   | N  |  | 1.0  |  |  |
| CHEM  |  |  | Chemistry AS.030.102                       | N  |  | 3.0  |  |  |
| CHEM  |  |  | Chemistry Lab AS.030.106                   | N  |  | 1.0  |  |  |
| CSCI  |  |  | Comp Sci A EN.600.107                      | E  |  | 3.0  |  |  |
| EART  |  |  | Env. Science TR.270.100                    | N  |  | 4.0  |  |  |
| ECON  |  |  | Econ - Mac AS.180.101                      | S  |  | 3.0  |  |  |
| MATH  |  |  | Calculus BC AS.110.108                     | Q  |  | 4.0  |  |  |
| MATH  |  |  | Calculus BC AS.110.109                     | Q  |  | 4.0  |  |  |
| PHYS  |  |  | Physics C- Mech (Lab I waived) AS.171.101  | EN |  | 4.0  |  |  |
| PHYS  |  |  | Physics C - E&M (Lab II waived) AS.171.102 | EN |  | 4.0  |  |  |
| ECON  |  |  | Econ - Mic AS.180.102                      | S  |  | 3.0  |  |  |
| TOTAL |  |  |  |    |  | 49.0 |  |  |

### Fall 2012

### Biomedical Eng

|             |      |         |                                     |      |       |      |     |     |
|-------------|------|---------|-------------------------------------|------|-------|------|-----|-----|
| AS          | CHEM | 030.205 | Organic Chemistry I                 | N    | S     | 4.0  | 0.0 | 0.0 |
| AS          | EART | 270.103 | Intro - Global Environmental Change | N    | S     | 3.0  | 0.0 | 0.0 |
| AS          | MATH | 110.211 | Honors Multivariable Calculus       | Q    | S     | 4.0  | 0.0 | 0.0 |
| AS          | PHYS | 171.201 | Special Relativity/Waves            | EN   | S     | 4.0  | 0.0 | 0.0 |
| EN          | BMED | 580.111 | BME Modeling & Design               | EN   | S     | 2.0  | 0.0 | 0.0 |
|             |      |         | TERM GPA                            | 0.00 | TOTAL | 17.0 | 0.0 | 0.0 |
|             |      |         | CUM GPA                             | 0.00 | TOTAL | 17.0 |     |     |
| Dean's List |      |         |                                     |      |       |      |     |     |

### Intersession 2013

### Biomedical Eng

|    |      |         |                                |      |       |      |     |     |
|----|------|---------|--------------------------------|------|-------|------|-----|-----|
| AS | COGS | 050.124 | LaTeX to write academic papers | NS   | S     | 1.0  | 0.0 | 0.0 |
| EN | CSCI | 600.220 | Malware: Past and Present      | E    | S     | 1.0  | 0.0 | 0.0 |
|    |      |         | TERM GPA                       | 0.00 | TOTAL | 2.0  | 0.0 | 0.0 |
|    |      |         | CUM GPA                        | 0.00 | TOTAL | 19.0 |     |     |

### Spring 2013

### Pre-Major

|             |      |         |                          |      |       |      |      |      |
|-------------|------|---------|--------------------------|------|-------|------|------|------|
| AS          | MATH | 110.302 | Diff Equations/Applic    | Q    | A     | 4.0  | 4.0  | 16.0 |
| AS          | PHYS | 171.202 | Modern Physics           | N    | A     | 4.0  | 4.0  | 16.0 |
| AS          | PHYS | 171.204 | Classical Mechanics II   | N    | A     | 4.0  | 4.0  | 16.0 |
| EN          | APPM | 550.171 | Discrete Mathematics     | Q    | A     | 4.0  | 4.0  | 16.0 |
| EN          | CSCI | 600.120 | Intermediate Programming | E    | A-    | 4.0  | 4.0  | 14.8 |
|             |      |         | TERM GPA                 | 3.94 | TOTAL | 20.0 | 20.0 | 78.8 |
|             |      |         | CUM GPA                  | 3.94 | TOTAL | 39.0 |      |      |
| Dean's List |      |         |                          |      |       |      |      |      |

### Summer 2013

### Physics

|    |      |         |                       |      |       |      |     |      |
|----|------|---------|-----------------------|------|-------|------|-----|------|
| AS | MATH | 110.201 | Online Linear Algebra | Q    | A-    | 4.0  | 4.0 | 14.8 |
|    |      |         | TERM GPA              | 3.70 | TOTAL | 4.0  | 4.0 | 14.8 |
|    |      |         | CUM GPA               | 3.90 | TOTAL | 43.0 |     |      |

### Fall 2013

### Physics

|    |      |         |                    |   |    |     |     |      |
|----|------|---------|--------------------|---|----|-----|-----|------|
| AS | ECON | 180.261 | Monetary Analysis  | S | A- | 3.0 | 3.0 | 11.1 |
| AS | MATH | 110.401 | Advanced Algebra I | Q | A+ | 4.0 | 4.0 | 16.0 |
| AS | PHYS | 171.301 | Electromag Thry II | N | A- | 4.0 | 4.0 | 14.8 |

|  |                  |   |                             |  |  |  |  |
|--|------------------|---|-----------------------------|--|--|--|--|
| <b>JOHNS HOPKINS</b><br>UNIVERSITY                               |                  | ZANVYL KRIEGER SCHOOL OF ARTS & SCIENCES<br>Baltimore, MD 21218 |                             | www.jhu.edu/registrar                  |  | <b>UNDERGRADUATE<br/>INTERNAL TRANSCRIPT</b> |  |
| Student Name<br>Mehrl, Nicholas Freeman                          |                  | Hopkins ID<br>897043  | Date of Birth<br>09/08/xxxx | JHU Degree and Date Conferred<br>xxxxx |  | Date Printed<br>2/3/2016                     |  |
| Year of Study<br>Senior  | Major<br>Physics | Advisor<br>Heckman, Timothy Martin                              |                             |  |  | Page 2 of 3                                  |  |
| Other Major(s)<br>Mathematics;Applied Mathematics and Statistics |                  |   | Minor(s)<br>xxxxx           |  |  |  |  |

| DIV                      | DEPT | CRSE #  | COURSE TITLE                        | CRSE AREA | GRADE | CREDITS | GPA CREDITS | GPA PTS |
|--------------------------|------|---------|-------------------------------------|-----------|-------|---------|-------------|---------|
| AS                       | PHYS | 171.303 | Quantum Mechanics I                 | N         | A+    | 4.0     | 4.0         | 16.0    |
| AS                       | PHYS | 171.323 | Physics of Human Energy Use         | N         | A     | 3.0     | 3.0         | 12.0    |
| EN                       | APPM | 550.420 | Intro to Probability                | EQ        | A     | 4.0     | 4.0         | 16.0    |
|                          |      |         | TERM GPA                            |           |       | 3.90    |             |         |
|                          |      |         | CUM GPA                             |           |       | 3.90    |             |         |
|                          |      |         | Dean's List                         |           |       |         |             |         |
|                          |      |         | Physics                             |           |       |         |             |         |
| <b>Spring 2014</b>       |      |         |                                     |           |       |         |             |         |
| AS                       | ECON | 180.385 | Evolution and Economics             | S         | B+    | 3.0     | 3.0         | 9.9     |
| AS                       | MATH | 110.417 | Partial Diff Equations              | Q         | A-    | 4.0     | 4.0         | 14.8    |
| AS                       | PHYS | 171.304 | Quantum Mechanics II                | N         | A     | 4.0     | 4.0         | 16.0    |
| AS                       | PHYS | 171.410 | Physical Cosmology                  | N         | A+    | 3.0     | 3.0         | 12.0    |
| AS                       | PHYS | 173.308 | Advanced Physics Lab                | N         | A     | 3.0     | 3.0         | 12.0    |
| EN                       | APPM | 550.453 | Mathematical Game Theory            | EQ        | A     | 4.0     | 4.0         | 16.0    |
|                          |      |         | TERM GPA                            |           |       | 3.84    |             |         |
|                          |      |         | CUM GPA                             |           |       | 3.88    |             |         |
|                          |      |         | Dean's List                         |           |       |         |             |         |
|                          |      |         | Physics                             |           |       |         |             |         |
| <b>Fall 2014</b>         |      |         |                                     |           |       |         |             |         |
| AS                       | ECON | 180.301 | Microeconomic Theory                | S         | A-    | 4.5     | 4.5         | 16.7    |
| AS                       | PHYS | 171.312 | Stat Physics/Thermodyn              | N         | A     | 4.0     | 4.0         | 16.0    |
| AS                       | PHYS | 171.605 | Quantum Mechanics                   |           | A+    | 4.0     | 4.0         | 16.0    |
| AS                       | PHYS | 171.621 | Condensed Matter Physics            |           | A+    | 3.0     | 3.0         | 12.0    |
| AS                       | PHYS | 172.203 | Contemporary Phys Sem               | N         | B     | 1.0     | 1.0         | 3.0     |
| EN                       | APPM | 550.361 | Introduction to Optimization        | EQ        | A     | 4.0     | 4.0         | 16.0    |
|                          |      |         | TERM GPA                            |           |       | 3.89    |             |         |
|                          |      |         | CUM GPA                             |           |       | 3.88    |             |         |
|                          |      |         | Dean's List                         |           |       |         |             |         |
|                          |      |         | Physics                             |           |       |         |             |         |
| <b>Spring 2015</b>       |      |         |                                     |           |       |         |             |         |
| AS                       | PHYS | 171.502 | Undergrad Independ Rsrch            | S         |       | 0.0     | 0.0         | 0.0     |
|                          |      |         | TERM GPA                            |           |       | 0.00    |             |         |
|                          |      |         | CUM GPA                             |           |       | 3.88    |             |         |
|                          |      |         | This course is not assigned credit. |           |       |         |             |         |
|                          |      |         | Physics                             |           |       |         |             |         |
| <b>Fall 2015</b>         |      |         |                                     |           |       |         |             |         |
| AS                       | MATH | 110.619 | Lie Groups and Lie Algebras         | Q         | A+    | 4.0     | 4.0         | 16.0    |
| AS                       | PHYS | 171.503 | Senior Thesis                       |           | MT    | 3.0     | 0.0         | 0.0     |
| AS                       | PHYS | 171.699 | Planets, Life and the Universe      |           | A+    | 3.0     | 3.0         | 12.0    |
| AS                       | PHYS | 171.701 | Quantum Field Theory                |           | A     | 3.0     | 3.0         | 12.0    |
| EN                       | APPM | 550.385 | Sci Comp: Linear Algebra            | EQ        | A+    | 4.0     | 4.0         | 16.0    |
| EN                       | PCOM | 661.250 | Oral Presentations                  |           | A     | 3.0     | 3.0         | 12.0    |
|                          |      |         | TERM GPA                            |           |       | 4.00    |             |         |
|                          |      |         | CUM GPA                             |           |       | 3.90    |             |         |
|                          |      |         | Dean's List                         |           |       |         |             |         |
|                          |      |         | Physics                             |           |       |         |             |         |
| <b>Intersession 2016</b> |      |         |                                     |           |       |         |             |         |
| EN                       | GEOE | 570.413 | Energy 104                          | ES        | S     | 1.0     | 0.0         | 0.0     |
|                          |      |         | TERM GPA                            |           |       | 0.00    |             |         |
|                          |      |         | CUM GPA                             |           |       | 3.90    |             |         |
|                          |      |         | Physics                             |           |       |         |             |         |
| <b>Spring 2016</b>       |      |         |                                     |           |       |         |             |         |
| AS                       | MATH | 110.405 | Analysis I                          | Q         | X     | 0.0     | 0.0         | 0.0     |
| AS                       | PHYS | 171.504 | Senior Thesis                       |           | X     | 0.0     | 0.0         | 0.0     |
| AS                       | PHYS | 171.611 | Stellar Structure & Evolution       |           | X     | 0.0     | 0.0         | 0.0     |

|  |                  |  |                             |  |  |
|--|------------------|--|-----------------------------|--|--|
| <b>JOHNS HOPKINS</b><br>UNIVERSITY                               |                  | ZANVYL KRIEGER SCHOOL OF ARTS & SCIENCES<br>Baltimore, MD 21218<br>www.jhu.edu/registrar |                             | <b>UNDERGRADUATE<br/>INTERNAL TRANSCRIPT</b> |  |
| Student Name<br>Mehrle, Nicholas Freeman                         |                  | Hopkins ID<br>897043   | Date of Birth<br>09/08/xxxx | JHU Degree and Date Conferred<br>xxxxx       |  |
| Year of Study<br>Senior  | Major<br>Physics | Advisor<br>Heckman, Timothy Martin   |                             | Date Printed<br>2/3/2016<br><br>Page 3 of 3  |  |
| Other Major(s)<br>Mathematics;Applied Mathematics and Statistics |                  | Minor(s)<br>xxxxx  |                             |  |  |

| DIV                         | DEPT | CRSE #  | COURSE TITLE                | CRSE AREA | GRADE | CREDITS | GPA CREDITS | GPA PTS |
|-----------------------------|------|---------|-----------------------------|-----------|-------|---------|-------------|---------|
| AS                          | PHYS | 171.732 | Elementary Particle Physics |           | X     | 0.0     | 0.0         | 0.0     |
| EN                          | APPM | 550.430 | Introduction to Statistics  | EQ        | X     | 0.0     | 0.0         | 0.0     |
| EN                          | MECH | 530.432 | Jet & Rocket Propulsion     | E         | X     | 0.0     | 0.0         | 0.0     |
|                             |      |         | TERM GPA                    | 0.00      | TOTAL | 0.0     | 0.0         | 0.0     |
|                             |      |         | CUM GPA                     | 0.00      | TOTAL | 127.5   |             |         |
| CUMULATIVE GPA 3.90         |      |         |                             |           | TOTAL | 104.5   |             |         |
| CUMULATIVE DEGREE CREDITS   |      |         |                             |           | TOTAL | 176.5   |             |         |
| TOTAL D/D+ CREDITS          |      |         |                             |           |       | 0.0     |             |         |
| TOTAL AP & TRANSFER CREDITS |      |         |                             |           |       | 49.0    |             |         |

Advisors:

Breckenridge, Adriene 01/28/2013

Robinson, Daniel P 09/03/2013

Mese, Chikako 08/28/2014

Levchenko, Andre 09/04/2012 - 01/06/2013 - (Primary Advisor)

Zhang, Kechen 01/07/2013 - 01/27/2013 - (Primary Advisor)

Heckman, Timothy Martin 05/28/2013 - (Primary Advisor)

General Honors

\*\*\*\*\*End Of Transcript\*\*\*\*\*